Software Requirements Specification (SRS)

SE-23022, SE-23026, SE-23044, SE-23046, SE-22035

April 24, 2025

ONLINE HEALTHCARE MANAGEMENT SYSTEM

1 Introduction

1.1 Purpose

The purpose of this document is to define the Software Requirements Specification (SRS) for the Online Healthcare Management System (OHMS). The system aims to provide an integrated web-based solution for managing medical records, appointments, prescriptions, and more for patients and doctors.

1.2 Scope

The OHMS will allow patients to search for doctors, book appointments, manage medical history, see medical reports and interact with doctors through secure chat. Doctors can manage schedules, provide prescriptions, upload reports and consult via the chat.

2 Features

2.1 User Authentication & Role-Based Access

- Secure registration and login system for patients and doctors across Pakistan.
- Role-based dashboard with customized views and access rights for each user type.

2.2 Patient Management

- Registration and management of patient profiles.
- View, update, and maintain personal medical history.
- Upload and retrieve medical reports and prescriptions.

2.3 Doctor Management

- Doctor self-registration involving all relevant career details.
- Update specialization, toggle availability and consultation fees.
- Access and update the medical prescriptions of patients.

2.4 Doctor Connect (Find & Chat with Doctors)

- Browse doctors by name, specialty, location, experience and fees in a structured directory.
- Each profile includes doctor's credentials, experience, timings and consultation charges.
- Patients can initiate a secure, real-time chat with available doctors.
- Doctors may respond with advice, test recommendations, or suggest appointments.
- Doctors can toggle their availability status as **Online** or **Offline**.
- Automated responses inform users when doctors are unavailable.
- End-to-end encrypted messaging to ensure confidentiality.

2.5 Appointment System

- Patients can book, reschedule, or cancel appointments.
- Doctors can accept or reject appointments.
- Appointment booking follows 30 minute time slots format.
- Already booked slots are greyed out.

2.6 Notifications and Alerts

- Email alerts for appointments, cancellations, prescriptions, and reports.

2.7 Accessibility and Support

- FAQs and emergency contact access for assistance.
- Feedback system for user suggestions and complaints.

3 Functional Requirements

1. The system must allow secure registration and login for patients, doctors with role-based access control.
2. Patients should be able to see their medical history, prescriptions, and download medical reports.
3. Patients can search for doctors based on name, specialization, location, experience and fee.
4. Patients should be able to book, reschedule, and cancel appointments.
5. Doctors must be able to accept or reject appointments.
6. the doctors should be able to see the future booked appointments for the next 7 days.
7. Doctors should have access to patient prescriptions and reports.
8. Doctors should be able to update their profiles, including specialization, and consultation fees.
9. The system should send email notifications for appointments, cancellations, test results, and prescription updates.
10. The system should provide a live chat feature for patients to interact with doctors.
11. Doctors should be able to prescribe medicines and tests digitally.
12. The system should generate invoices for consultations, tests, and treatments.
13. The system should generate analytics and reports on patient visits, revenue, and doctor performance but it is not necessary in the beta version.
14. The system should have emergency contact details and FAQs for patient assistance.
15. The system should allow doctors to mark themselves as **Online/Offline** for chat availability.
16. Secure messaging should be implemented with end-to-end encryption for doctor-patient confidentiality.

4 Non-Functional Requirements

1. All user data must be encrypted and stored securely.
2. The user passwords are stored in the database as a hash so even access to the database is not enough to compromise an account.
3. The system should support at least 1000 concurrent users without performance degradation.
4. Appointment booking and search results should be displayed within 2 seconds.
5. The system should maintain 99.9% uptime with automated data backups.
6. The system should comply with healthcare regulations such as HIPAA for patient data protection.
7. The system should provide a responsive and intuitive UI which is easy to interpret for even old users.
8. The system architecture should support scalability to accommodate future expansions.
9. The system should ensure seamless API integration for third-party services like gateways and email notifications.
10. System logs should be maintained for tracking all user actions for security audits but is not necessary in the beta version.
11. The database should support ACID transactions to ensure data consistency.
12. The system should support data export in PDF format for reports.
13. The system should not take more than 3 seconds for the initial visit.
14. The user credentials and auth tokens should be stored in the browser's local storage after logging in.
15. The system should ensure that all medical records and prescriptions are stored in DB.